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Jugular Venous Neurone Specific Enolase (NSE) Increases Following Carotid Endarterectomy Under General, but Not Local, Anaesthesia

Wijeyaratne S.M., Collins M.A., Barth J.H., Gough M.J. Eur J Vasc Endovasc Surg 2009;38:262-266.

Introduction: Previous studies indicate that local (LA) rather than general anaesthesia (GA) for carotid endarterectomy (CEA) is associated with reflex hypertension and preservation of cerebral cytochrome oxidase after carotid clamping. The hypothesis that LA offers protection against ischaemic cerebral injury has been investigated by measuring ipsilateral jugular venous neurone specific enolase (NSE: neuronal glycolytic enzyme) and S-100B (glial cell protein) during and after CEA.

Methods: 27 patients with symptomatic carotid artery disease (70–99% stenosis) underwent CEA, 14 under LA and 13 under GA. Jugular venous blood samples were assayed for NSE and S-100B before carotid clamping and at 5 min before and 5 min, 2, 4, 6, 8, 12 and 24 h after clamp release.

Results: No neurological complications occurred. S-100B levels were low and did not increase from baseline in either group. Pre-clamp NSE levels were similar in both groups (LA: 17.6 (15.2–20.7) μg/l, GA: 21.5 (11.3–26.2) μg/l; $p = 0.37$) but increased significantly 2 h after clamp release in GA patients (LA: 25.5 (16.6–27.8) μg/l, GA: 48.2 (31.4–61.3) μg/l, $p = 0.05$) with a significant rise from baseline in GA patients ($p = 0.04$).

Conclusions: CEA performed under GA is associated with greater rises in jugular venous NSE, and hence cerebral injury, than CEA performed under LA.

The Endovascular Management of Penetrating Carotid Artery Injuries: Long-term Follow-up

du Toit D.F., Coolen D., Lambrechts A., de V. Odendaal J., Warren B.L. Eur J Vasc Endovasc Surg 2009;38:267-272.

Objectives: To review a single-centre experience with stent-graft treatment of penetrating carotid artery injuries and long-term follow-up.

Methods: All stable patients with carotid artery injuries presenting between August 1998 and February 2009 were considered for endovascular treatment. Patients were selected based on clinical and radiological criteria and data were prospectively collected. Follow-up was conducted clinically, angiographically and by telephonic contact. Endpoints were stroke, death and any other stent-graft-related complications.

Results: A total of 128 patients were treated, of whom only 19 were selected for endovascular management. The recorded technical success rate was 100%, with one early stroke and one non-stent-graft-related procedural death. A further four patients were lost to follow-up. The remaining 14 patients had a mean follow-up of nearly 4 years. No stent-graft-related late deaths, strokes or other complications were reported, although one instance of late stent-graft occlusion was documented.

Conclusion: Endovascular management of penetrating carotid artery injuries is safe and the long-term outcomes justify a more liberal application of this technique in selected patients.

The Importance of Anatomical Suitability and Fitness for the Outcome of Endovascular Repair of Ruptured Abdominal Aortic Aneurysm

Richards T., Goode S.D., Hinchliffe R., Altaf N., MacSweeney S., Braithwaite B. Eur J Vasc Endovasc Surg 2009;38:285-290.

Introduction: Endovascular repair of aortic aneurysm (EVAR) has a lower mortality than open repair. The aim of this study was to assess mortality from EVAR for emergency AAA repair and the impact of fitness for operation and adverse anatomy.

Methods: One-hundred and forty two patients who had EVAR for a ruptured AAA (80, REVAR) or a symptomatic AAA (62, SEVAR) between 1994 and 2007 in a single specialist endovascular centre were reviewed. Fitness for surgery was assessed by Hardman's index (age > 76, loss of consciousness, Hb < 9.0, Cr > 190, ischaemic ECG). CT scans were reviewed, compared with operative images and operation notes for adverse anatomy. Details of perioperative complications, and outcome were recorded.

Results: Overall mortality at 24-h, 30-days and one year were, respectively: 17%, 36%, 50% for REVAR and 5%, 8%, 23% for SEVAR. Overall adverse anatomy increased 30-day mortality. Hardman's index of three or more increased mortality HR = 2.59 (1.24–5.41), $p = 0.01$. On Cox regression Univariate analysis increasing Hardman's index score and adverse anatomy increased the overall mortality over time. In multivariate Cox regression analysis (controlled for the Hardman's index) adverse anatomy was associated with significant increase in graft related mortality.

Conclusion: The use of EVAR is feasible in patients who present with a ruptured or acutely symptomatic AAA. Care must be taken not to extend anatomical or clinical guidelines.

A Comparison of the Mid-term Results Following the use of Bifurcated and Aorto-uni-iliac Devices in the Treatment of Abdominal Aortic Aneurysms

Jean-Baptiste E., Batt M., Azzaoui R., Koussa M., Hassen-Khodja R., Haulon S. Eur J Vasc Endovasc Surg 2009;38:298-304.

Purpose: To compare the mid-term results following the use of bifurcated (ABIS) and aorto-uniiliac (AUIS) endovascular devices in the treatment of abdominal aortic aneurysms (AAA) in a population of patients deemed to be at high risk for open surgery.

Material and methods: Over a 4 year period (January 2003 to December 2007), 447 underwent elective endovascular aneurysm repair (EVAR) using ZENITH® stent-grafts. Group I comprised patients treated using the AUIS ($n = 124$), and group II those receiving ABIS ($n = 323$). Outcome measures included the assisted technical success rate, perioperative mortality, major complications, freedom from reintervention, and primary and secondary patencies. Factors associated with mid-term clinical failures were determined using univariate and multivariate analyses.

Results: The assisted primary technical success rate was 94% and 99% in groups I and II respectively ($p = .002$). Major perioperative complications occurred in 13 group I patients (10%) vs. 12 group II patients (4%) ($p = .005$). The 30-day mortality rate was 3.2% vs.1.5% ($p = 0.2$). TASC C and D iliac lesions significantly increased the risk of major perioperative complications (35% vs. 3%; OR = 14.94; 95% CI: 5.75 to 38.78; $p < .0001$). During the follow-up period (median 24 months), secondary procedures were required in 11% and 5% of group I and group II patients respectively ($p = .01$). Freedom from reintervention at 12, 24 and 36 months was 98%, 90%, and 85% in group I vs. 96%, 92%, and 92% in group II ($P < 0.005$). The primary and secondary patency rates at 3 years were 92% vs. 98% ($p = .003$) and 97% vs. 99% ($p = .04$) for groups I and II respectively. In group I, the Crossover Femoro-Femoral Bypass (CFFB) was responsible for 3 major complications (2.4%) which occurred at 7, 12 and 57 months of follow-up. However, the use of AUIS with CFFB did not independently increase the risk of major complications during follow-up (HR = 0.108; 95% CI: 0.007 to 1.637; $p = .11$, Cox proportion model). In both univariate and multivariate analysis, concomitant iliac arterial occlusive disease (IAOD) was the only significant predictor of clinical failure in study population as a whole (OR = 3.996; 95% CI: 1.996 to 7.921; $p < .0001$).

Conclusion: This study demonstrates that ABIS is associated with better results than AUIS in the management of patients with AAA. Iliac artery occlusive disease was more frequently diagnosed in the AUIS group and this was significantly associated with a higher risk of complications, while the crossover graft itself was not. Nevertheless, the outcomes for both groups are encouraging in this high risk population.

Prevalence of Symptomatic and Asymptomatic Peripheral Arterial Disease and the Value of the Ankle-brachial Index to Stratify Cardiovascular Risk

Ramos R., Quesada M., Solanas P., Subirana I., Sala J., Vila J., Masiá R., Cerezo C., Elosua R., Grau M., Cordón F., Juvinyà D., Fitó M., Isabel Covas M., Clarà A., Ángel Muñoz M., Marrugat J., on behalf of the REGICOR Investigators. Eur J Vasc Endovasc Surg 2009;38:305-311.

Objectives: To determine the prevalence of ankle-brachial index (ABI) < 0.9 and symptomatic peripheral arterial disease (PAD), association with cardiovascular risk factors (CVRF), and impact of adding ABI measurement to coronary heart disease (CHD) risk screening.

Design: Population-based cross-sectional survey of 6262 participants aged 35–79 in Girona, Spain.

Methods: Standardized measurements (CVRF, ABI, 10-year CHD risk) and history of intermittent claudication (IC), CHD, and stroke were